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DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 3 and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The term “set to a size to allow passage of a person” is a relative term which renders the claim indefinite. The size of a “person” is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Given that the size of persons varies radically according to age, etc., the examiner will interpret an opening of any size disclosed by the prior art as satisfying this limitation.

Claims 5 and 7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear what is meant by “the line segment joining the center of the substrate supported in the substrate supporting jig,” recited in claim 5 and reference in claim 7, given that the supporting jig is moveable. For if the supporting jig is movable, then the “line segment joining the center of the substrate...in the...jig” will be movable as well, and said segment therefore cannot function as a reference axis for locating other components of the apparatus. Even so, the claim will be examined as written until this matter is resolved.

Claims 15-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear how the “space of the transfer chamber gradually becomes smaller as the opening section and the door become closer to the cleaning unit side.” According to the specification, both the cleaning unit (34) and the opening section (5) are static entities. Therefore, it seems impossible that these two components alone could alter the volume of the transfer chamber. In order to facilitate prosecution until this matter is resolved, the examiner will consider prior art teaching a opening section and cleaning unit as satisfying this limitation.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

According to a First Grounds of Rejection:

Claims 1-5, 8, 10-11, 14-16, and 18-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Yamamoto et al., US 2002/0197145.

Claims 1, 3-5, 14, 20: Yamamoto teaches a substrate processing apparatus comprising (Fig. 3):

- A load lock/standby chamber (3) for supporting a substrate in a jig (30) [0026];
- A transfer chamber (22);
- A processing chamber (14) disposed above the load lock chamber;
- An opening section (5) having a door (6) and provided at the rear side of the transfer chamber [0021];
- A carrier load mount (42) for loading a carrier (P) [0048].

Lastly, the “center line passing through the center of the case” can be taken to run horizontally across the apparatus with regard to Figure 3 of Yamamoto, thereby rendering the carrier load mount offset relative to this axis.

Claims 2, 8, 10-11: This claim is drawn to the intended use of the apparatus, wherein a recitation concerning the manner in which a claimed apparatus is to be employed does not differentiate the apparatus from prior art satisfying the claimed structural limitations (*Ex parte Masham*, 2 USPQ2d 1647). It is the position of the Office that the opening section is fully capable of being used for maintenance purposes.

Claims 15-16: Yamamoto installs a cleaning unit (24) within the transfer chamber to clean its atmosphere [0025].

Claims 18-19: With regard to Figure 2, Yamamoto provides a load lock (3) and transfer (22) chamber, in order, from the rear side of the apparatus, wherein the opening section (5) is provided at the rear side of the transfer chamber. Lastly, the “center line passing through the center of the case” can be taken to run horizontally across the apparatus with regard to Figure 3 of Yamamoto, thereby rendering the load lock chamber offset relative to this axis.

According to a Second Grounds of Rejection:

Claims 1-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Takanabe, US 5,277,579.

Claims 1, 3-5, 14, 20: Takanabe teaches a substrate processing apparatus comprising (Fig. 1):

- A load lock/standby chamber (200) for supporting a substrate in a jig (B);
- A transfer chamber (300);
- A processing chamber (2) disposed above the load lock chamber;

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- An opening section (G2) having a door and provided at the rear side of the transfer chamber;
- A carrier load mount (not shown) for loading a carrier (4) (3, 55-59).

Lastly, with reference to Figure 2, the carrier load mount casing (400) is offset to one side.

Claims 2, 8-11, 13, 17: This claim is drawn to the intended use of the apparatus, wherein a recitation concerning the manner in which a claimed apparatus is to be employed does not differentiate the apparatus from prior art satisfying the claimed structural limitations (*Ex parte Masham*, 2 USPQ2d 1647). It is the position of the Office that the opening section is fully capable of being used for maintenance purposes.

Claims 6-7, 12: The transfer chamber (300) comprises a transfer device (3) disposed on one side and an alignment device (32) on the other, in addition to a cleaning unit (P3) (5, 24-27).

Claims 15-16: Takanabe installs a cleaning unit (P3) within the transfer chamber to clean its atmosphere [0025].

Claims 18-19: With regard to Figure 2, Takanabe provides a load lock (200) and transfer (300) chamber, in order, from the rear side of the apparatus, wherein the opening section (G2) is provided at the rear side of the transfer chamber. Lastly, the load lock chamber offset relative to the center axis.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6-7, 9, 12-13, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto in view of Takanabe.

Claims 6, 12: Yamamoto installs a substrate transfer device (30) within the transfer chamber but does not teach an aligner. In supplementation, Takanabe disposes a substrate aligner (32) within the transfer chamber to align the orientation flat of each wafer in the desired direction so as to facilitate accurate transfer to the adjacent load lock chamber (5, 36-45). In view of this teaching, it would have been obvious to the skilled artisan to incorporate a substrate aligner within Yamamoto's transfer chamber in order to achieve the predictable result of orienting a wafer so as to promote its accurate transport.

Claims 7, 9, 13, 17: The 102 rejections of claims 8, 10, and 15, above, address these limitations.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan K. Ford whose telephone number is 571 270 1880. The examiner can normally be reached on M-F, 8:30-5:00 EDT. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh, can be reached at 571 272 1435. The fax phone number for the organization where this application or proceeding is assigned is 571 273 8300.

/N. K. F./

Examiner, Art Unit 1716

/Karla Moore/

Primary Examiner, Art Unit 1716